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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,189	06/22/2006	Richard Corbett	09728.0329USWO	2699
23552 7590 05/14/2009 MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			EXAMINER DODD, RYAN P	
			ART UNIT 4134	PAPER NUMBER
			MAIL DATE 05/14/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,189	Applicant(s) CORBETT ET AL.	
	Examiner RYAN DODD	Art Unit 4134	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/16/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 3 is objected to because of the following informalities: Claim 3 may more properly depend from Claim 2 rather than claim 1, because it refers to the elements of Claim 2 and arguably contains all the limitations of Claim 2. Appropriate correction is required.

2. Claim 2 is objected to because of the following informalities: Claim 2 refers to the screw (61) when it should refer to the screw (62). Appropriate correction is required.

Priority

3. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119 as follows:

4. Applicant has not met the requirements under 35 USC 119 (a) for a claim of foreign priority because PCT/EP03/14703 12/22/2003 was not filed within 12 months of Italy TO2002-001103 12/20/2002.

Drawings

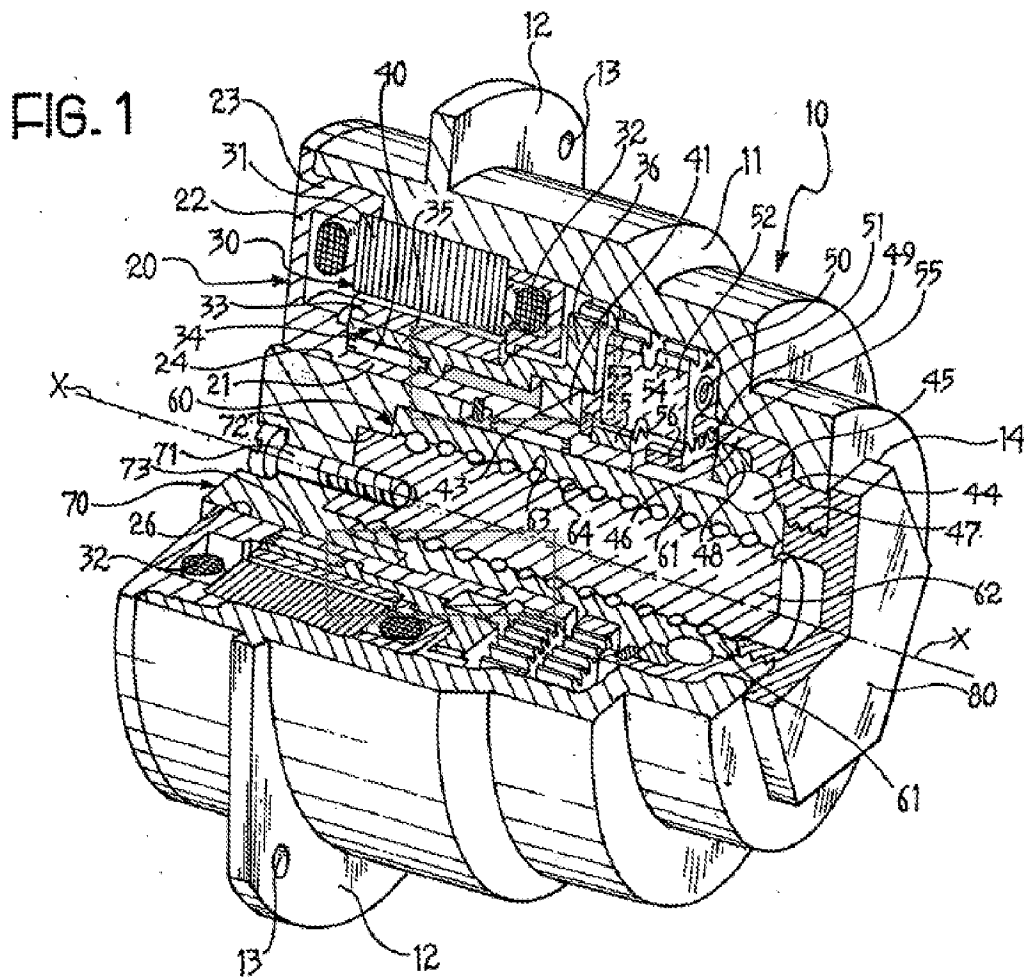
5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because in figure 1, reference characters (55) and (56) both point to what is described as the output gear (56) in the specification (page 4, first paragraph). Reference character (55) is also used to refer to a fixed gear. It is proposed that applicant not point reference character (55) at the output gear in figure 1.

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6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. It is claimed in claim 1 that supporting element (21) externally, rotatably supports the rotor (34) of the electric motor (30). Figure 1 demonstrates an asymmetric approximation of this. The upper cross-section is not congruent to the bottom cross-section in many respects, and delineates a

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space (shaded area), whereas the bottom does not.

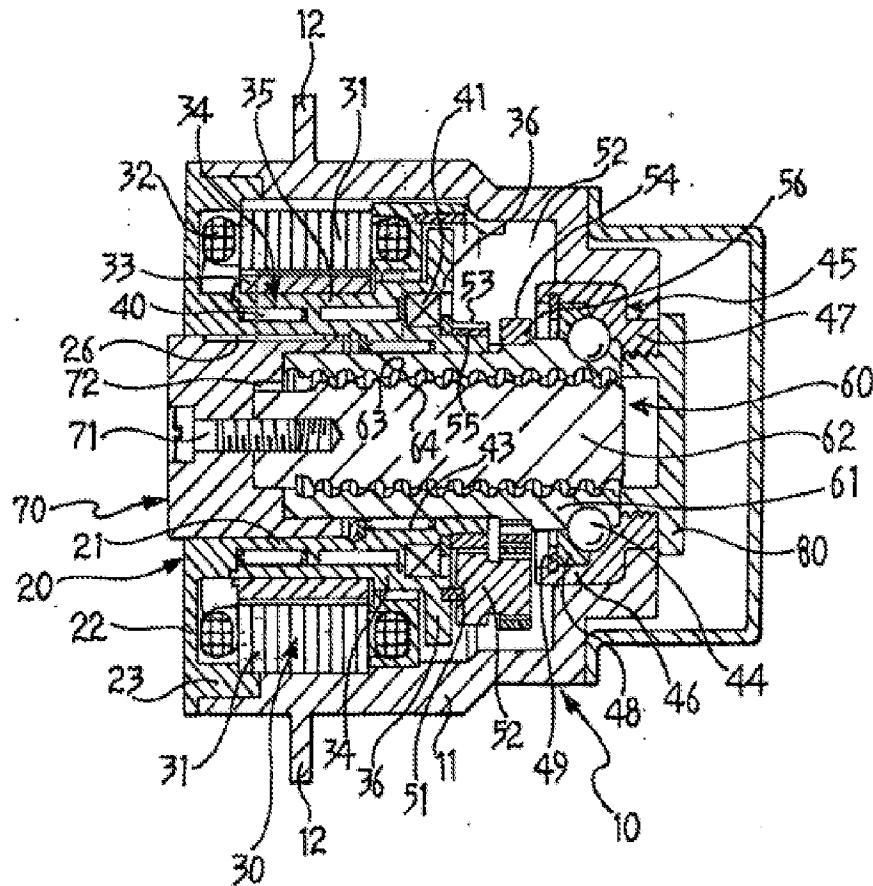


7. Figure 3 shows a symmetric rendition of the relationship between the supporting element and the rotor, but does not delineate a separating line between the two elements, suggesting to an observer that they may rotate as one element.

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Therefore, it is recommended that applicant at least correct Figure 3 and perhaps the lower cross-section of Figure 1, or else at least make reference in the specification to the most accurate rendition of the claimed subject matter, or cancel the features from the claim(s). No new matter should be entered.

FIG. 3



8. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next office action. The objection to the drawings will not be held in abeyance.

Specification

9. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required. In claims 2 and 3, Applicant refers to item (24) as an axial cavity. The specification refers to reference character (24) as a cylindrical bore (page 5, first full paragraph). Please edit either the claims 2 and 3 or the specification for consistency.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The drawings or specification fail to so support the following limitations:

- The **gear reduction means (50)** of claim 1 and the **planetary gear reduction system** of claim 5 is not adequately pictured or described as to what is being reduced and how. (See specification page 3 last paragraph and page 4 first paragraph)
- In claim 7, although figure 1 does suggest a **satellite gear (52)** having **two toothed portions (53, 54)**, the rest of the drawings and specification fail to provide **how a first toothed portion (53) meshes with a fixed gear (55) fast with the tubular supporting member and a second toothed portion (54) meshes with a gear (56) fast for rotation with the nut (61)**. In particular,

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examiner was confused how a single gear could be meshed with a fixed gear that is *fast* with tubular supporting member (21), which does not appear to move with respect to the housing (11), and at the same time meshed with a gear *fast for rotation* with the nut (61), which appears to turn radially. Please describe how the fixed gear (55) rotates around supporting member (21) while still being **fast**, and what **fast** means (more than “secured” as stated in the specification, page 4, first paragraph), or amend figures 1,3, 6, or 7, or add drawings to show a working embodiment of claim 7. See also the objection to the drawings concerning numbers (55) and (56) in figure 1..

- Because the two toothed portions 53 and 54 constitute one satellite gear 52, it cannot be readily ascertained from the drawings or specification that there are in fact a **plurality of satellite gears** as claimed in claim 6.

12. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

13. MPEP 2164.01 establishes the analysis required to determine whether the filed disclosure contains sufficient information regarding the subject matter of the claims as to one skilled in the art to make and use the claimed invention without undue

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experimentation. The factors to be considered to determine whether any necessary experimentation is undue, also known as The Wand factors, see *In re Wands*, 858 F. 2d 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) include, but are not limited to:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

14. After analyzing the application with the above factors, the examiner concluded that there is no enabling disclosure for the following limitations:

- **gear reduction means** of claim 1,
- **planetary gear reduction system** of claim 5,
- **plurality of satellite gears** of claim 6,
- all of claim 7.

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15. It is not clear how the gear reduction means translates motion or speed between the rotor and the screw mechanism. Although figures 1 and 3 suggest a planet gear system, with fixed gear (55) and a satellite gear (22), it is not clear what or how this reduces motion or speed from the radial flange (36) of the rotor (34), figures 1 and 3 do suggest a plurality of satellite gears and figures 6 and 7 do not picture any satellite gears to help answer these questions. In particular, the support for claim 7 in the specification page 4 first paragraph is not enabling, because as described above, it is unclear how one satellite gear (52) has two toothed portions (53) and (54) that mesh with both **a fixed gear (55) fast with the tubular supporting member (21) and a gear (56) fast for rotation with the nut (61)**, and the drawings do not demonstrate how this is possible.

16. The following is a quotation of the second paragraph of 35 U.S.C. 112:

a. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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17. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

18. Due to the 112 1st Lack of Enablement rejection above, claims 1-14 are deemed to be indefinite because the scope of the claims are unascertainable.

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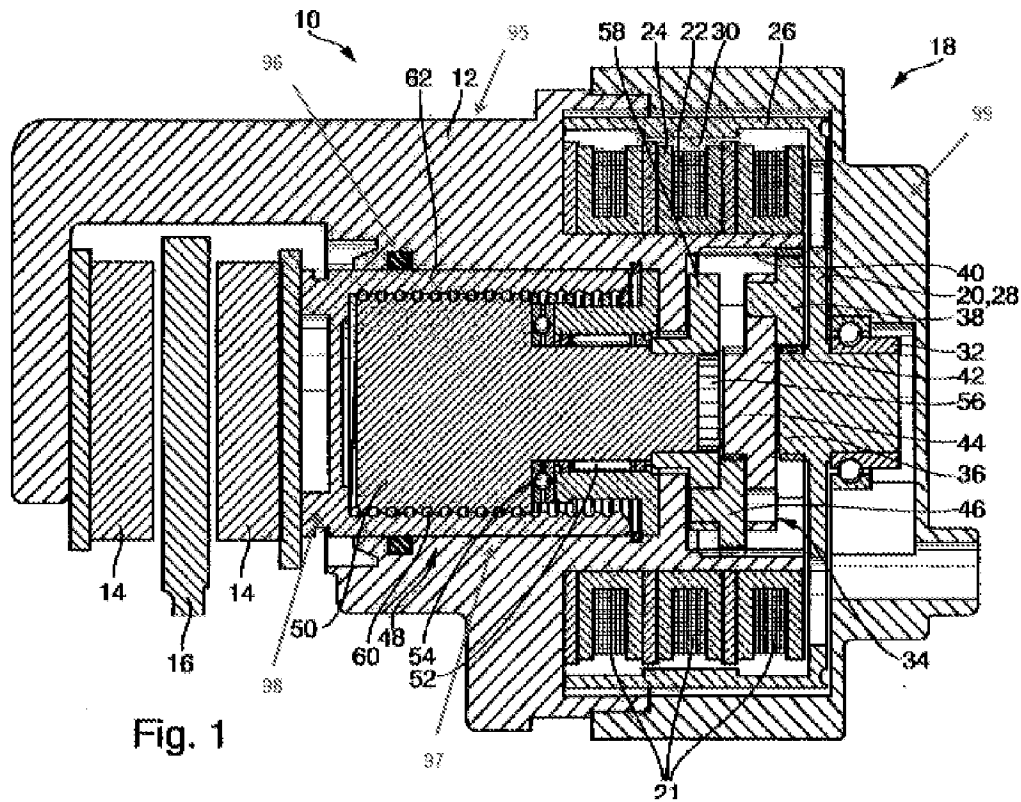
Claim Rejections - 35 USC § 102

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. Claims 1-6, 13, and 14, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Hilzinger WO 0170552, (hereinafter Hilzinger '552).



21. As to claim 1, Hilzinger '552 discloses an electro-mechanical screw actuator assembly (electromechanical wheel brake device 10), of the type comprising:

- a housing (99), fixable to a motor vehicle,

- an electric motor (18) mounted within the housing (99) and comprising a stator (yokes 24 in combination with excitation device 22, see paragraph 15) fixed to the housing (99) and a rotor (20),
 - a screw mechanism (ball screw 48, see claim 7), including a rotatable nut (62) and a central screw (spindle 50) translatable along a given axis (x),
 - gear reduction means (reduction gear 34 in combination with a planetary carrier 58) disposed between the rotor (20) and the screw mechanism (48) for provoking a translation of the screw (50),
 - wherein the housing (99) is secured to or integral with a supporting element (brake caliper 12) of essentially tubular cylindrical shape extending within the housing (99) coaxial to said axis (x), and wherein the supporting element (12)
 - externally, rotatably supports the rotor (20) of the electric motor (18)
 - internally, rotatably supports the nut (62) of the screw mechanism (48);
 - wherein the supporting member (12) supports externally at least one fixed gear (planet carrier 58) of the gear reduction means (reduction gear 34 in combination with a planetary carrier 58).
- With regards to the “gear reduction means for ... provoking a translation of the screw”, this limitation meets the three-prong test per MPEP 2181 and thereby invokes 35 USC 112 6th paragraph. In the instant specification, the “said means for provoking” is described on pages 3-4, last and first paragraph,

respectively. Hilzinger '552 discloses a planetary gear reduction system including a rotor (20) which forms a radial flange (end wall 28) that serves as a planetary carrier for a planetary gear reduction system. The means for provoking translation of the screw in Hilzinger '552 is performed in substantially the same way as applicant, and produces substantially the same result as the corresponding element in applicant's specification. See MPEP 2183.

22. As to claim 2, Hilzinger '552 discloses the actuator assembly according to Claim 1, wherein the supporting member (12) forms an axial cavity (97) for accommodating and axially guiding a piston member (98) fixed to or integral with the screw (48).

23. As to claim 3, Hilzinger '552 discloses the actuator assembly according to Claim 1, wherein at the interface between the axial cavity (97) of the supporting member (12) and the piston member (98) there is provided an axial splined coupling or a form coupling (96) for preventing rotation of the screw (50) and/or the piston member (98) with respect to the housing (99). Although Hilzinger '552 does not explicitly label or teach the manner of attachment between the supporting member and the piston member, it shows a coupling of the two elements and the term "form coupling" is a generic term that encompasses such a general attachment.

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24. As to claim 4, Hilzinger '552 discloses the actuator assembly according to Claim 1, wherein the supporting member (12) is formed by a rigid body (95) having also a supporting means for mounting the stator (24 and 22) of the electric motor (18).

25. As to claim 5, Hilzinger '552 discloses the actuator assembly according to Claim 1, wherein the gear reduction means (58 and 34) include a planetary gear reduction system (planet carrier 58 in combination with reduction gear 34).

26. As to claim 6, Hilzinger '552 discloses the actuator assembly according to Claim 5, wherein the rotor (20) forms a radial flange (28 end wall), that serves as a carrier for a plurality of satellite gears (planetary gear 46, three planet wheels 38, reduction gear 34).

27. As to claim, 13, Hilzinger '552 discloses the actuator assembly according to claim 1, wherein the screw mechanism (ballscrew 60) includes a ballscrew.

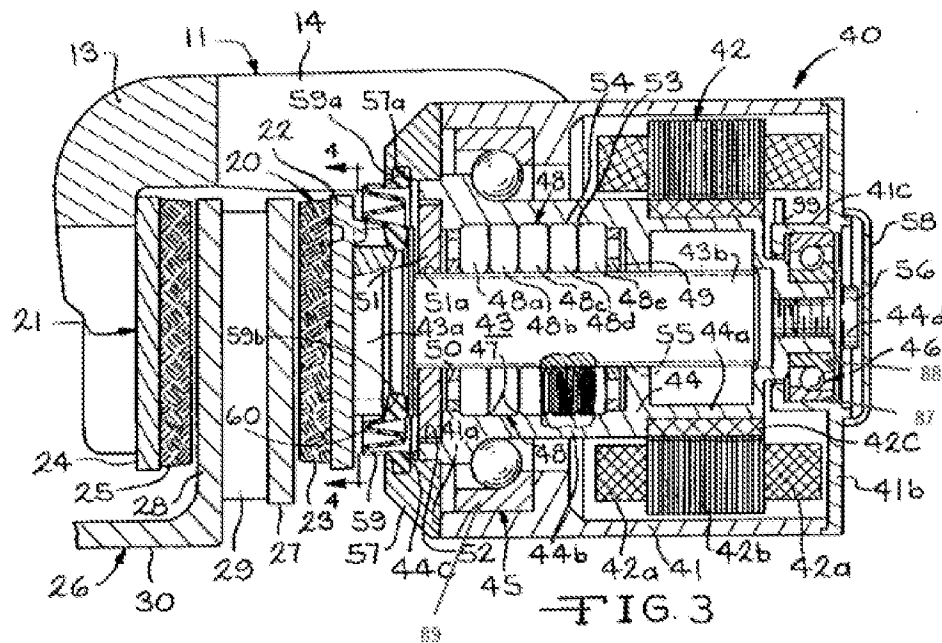
28. As to claim 14, Hilzinger '552 discloses the actuator assembly according to Claim 1, wherein it is coupled with a brake caliper (12) for operating a braking force on a motor vehicle.

Claim Rejections - 35 USC § 103

29. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

30. Claims 8-12, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilzinger '552 in view of Kingston US 5931268, (hereinafter Kingston '268).



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 Sheet 3 of 7
 5,931,268

31. As to claim 8, Hilzinger '552 discloses the actuator assembly according to claim 1, and a screw mechanism (48) but the screw mechanism is not supported at an end thereof by an angular contact ball bearing. Kingston '268 discloses a screw mechanism (spindle 43 inside an output shaft 44 in combination with planetary rollers 48) rotatably supported at an end thereof by an angular contact ball bearing (45).

32. As to claim 9, Kingston also discloses the radially outer raceway of the angular contact ball bearing (45) formed at least partially by a sleeve member (89) axially locked onto housing (41).

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33. It would have been obvious to one having ordinary skill in the art to incorporate the elements of the screw actuator assembly of Hilzinger '552 and support the screw mechanism at one of its ends with an angular contact ball bearing, which is capable of accepting axial and vertical loads. It would also have been obvious to one having ordinary skill in the art to incorporate a sleeve member, commonly called a race and an integral part of ordinary ball bearing assemblies, and axially lock it to the housing, in order to disperse axial (as well as vertical) loads unto the housing.

34. As to claim 10, the limitation "wherein the sleeve member is axially locked onto the housing **by cold forming an end portion of the sleeve member deformed in a radially outer direction against a radial wall of the housing**" has not been given patentable weight. In accordance to MPEP 2113, the method of forming the device is not germane to the issue of patentability of the device itself. Please note that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product, i.e. the axial locking of the sleeve member onto the housing, does not depend on its method of production, i.e. by cold forming. *In re Thorpe, 227 USPQ 964, 966 (Federal Circuit 1985).*

35. As to claim 11, Hilzinger '552 in view of Kingston US 5931268 discloses the claimed invention with the radially outer raceway of the angular contact ball

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bearing (bearing 45) is formed entirely by a sleeve member (89), but does not disclose the radially inner raceway being formed partly by the nut (output shaft 44) and **partly by a separate annular member axially locked onto the nut.**

36. It would have been obvious to one having ordinary skill in the art at the time the invention was made to introduce a separate element to form the inner raceway of the bearing, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlicnrrnan*, 168 USPQ 177, 179. Please note that in the instant application, page 5, last paragraph, applicant has not disclosed any criticality for the claimed limitations.

37. As to claim 12, the further limitation “wherein the separate annular member is axially locked onto the nut **by cold forming an end portion of the nut that is deformed in a radially outer direction against a radial wall of the separate ring**” has not been given patentable weight. In accordance to MPEP 2113, the method of forming the device is not germane to the issue of patentability of the device itself. Please note that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product, i.e. the axial locking of the end portion of the nut onto the separate ring, does not depend

on its method of production, i.e. by cold forming. *In re Thorpe*, 227 USPQ 964, 966 (Federal Circuit 1985).

38. In re claim 7, normally a claim which fails to comply with the first and/or second paragraph of §112 will not be analyzed as to whether it is patentable over the prior art since to do so would of necessity require speculation with regard to the metes and bounds of the claimed subject matter, *In re Steele*, 308 F.2d 859, 862-63, 134 USPQ 292, (CCPA 1962) and *In re Wilson*, 424 F.2d 1382, 1385, 496 USPQ 494, 496 (CCPA 1970).

Conclusion

39. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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Certificate of Mailing

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Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning


facsimile transmissions and mailing, respectively.

40. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 7007775 B2 Kapaan discloses gears with two toothed

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portions and an axial translation of a screw. US 6315092 B1 Schwarz discloses an axially displaceable spindle and a reduction gear.

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41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN DODD whose telephone number is (571)270-1161. The examiner can normally be reached on Monday thru Friday, 7:30A-5P. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Nguyen can be reached on (571)272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Examiner Ryan Dodd/

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/George Nguyen/

Supervisory Patent Examiner, Art Unit 4134